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International Application N 0 0 / 0 3 8 4 8

EPO - Editernational Filing Date 2 8 APR 2000

according to the Patent Cooperation Treaty  67	Name of receiving Office and "PCT Inter upplication"				
	Applicant's or agent's file reference (if desired) (12 characters maximum) PU3650/WO				
Box No. 1 TITLE OF INVENTION	10.				
Box No. II APPLICANT	al Compounds				
Name and address: (Family name followed by given name; for a legal	and CD C 1				
designation. The address must include postal code and name of country, indicated in this Box is the applicant's State (that is, country) of residence indicated below).	The country of the address if no State of residence is  This person is also inventor.				
Slaxo Group Limited	Telephone No. 020 8966 8000				
Glaxo Wellcome House	Facsimile No. 020 8966 8838				
Berkeley Avenue					
Greenford, Middlesex, UB6 0NN	Teleprinter No. 25456				
GB					
State (i.e. country) of nationality:	State (i.e. country) of residence:				
This person is applicant all designated of all designated	GB				
for the purposes of States the United States	s of America of America only Supplemental Box				
Box No. III FURTHER APPLICANTS AND/OR (FURT)	HER) INVENTORS				
Name and address: (Family name followed by given name; for a legal edesignation. The address must include postal code and name of country. I indicated in this Box is the applicant's State (that is, country) of residence indicated below.)	The common of the address.				
BIGHAM, Eric Cleveland	. applicant only				
Glaxo Wellcome Inc	applicant and inventor				
Five Moore Drive					
research Triangle Park	inventor only (If this check-box				
North Carolina 27709 US	is marked, do not fill in below.)				
State (i.e. country) of nationality:	State (i.e. country) of residence:				
US	US US				
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Further applicants and/or (further) inventors are indicated or	a continuation sheet.				
Box No. IV AGENT OR COMMON REPRESENTATIVE					
Box No. IV AGENT OR COMMON REPRESENTATIVE The person identified below is hereby/has been appoint d to act of	: OR ADDRESS FOR CORRESPONDENCE				
or the applicant(s) before the competent International Atthorities	agent   common representative				
Name and address: (Family name followed by given name: for a legal	entity full official Telephone No.				
designation. The address must include postal code (in I name of country).  LEAROYD, Stephanie A  Footimits No.:  020 8966 8000					
Glaxo Wellcome plc					
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If none of the following sub-boxes is used, this s	heet is not to be included in the request.
US  This person is applicant all designated all designated States	applicant only applicant and inventor inventor only (If this check-box is marked, do not fill in below.)  ate (i.e. country) of residence:  US  except the United States the States indicated in
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The address must include postal code and name of country. The country of the add. Box is the applicant's State (that is, country) of residence if no State of residence is  )REWRY, David Harold Glaxo Wellcome Inc Five Moore Drive Research Triangle Park North Carolina 27709 US	indicated in this indicated below.)  applicant only applicant and inventor inventor only (If this check-box is marked, do not fill in below.)
	ate (i.e. country) of residence:
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This person is applicant all designated all designated States all designated States the United States of	
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	tate (i.e. country) of residence:
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This person is applicant all designated all designated States	the United States the States indicated in

the United States of America

for the purposes of:

Further applicants and/or (further) inventors are indicated on a continuation sheet.

the Supplemental Box

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## PCT/EP 0 0 / 0 3 8 4 8

Sheet No . ..3....

Continuation of Box No. III FURTHER APPLICANTS AND/OR (FURTHER) INVE	NTORS
If none of the following sub-boxes is used, this sheet is not to be incl	luded in the request.
Name and address: (Family name followed by given name: fcr a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)  NAVAS III, Frank  Glaxo Wellcome Inc  Five Moore Drive  Research Triangle Park  North Carolina 27709  US	This person Is:  applicant only applicant and inventor inventor only (If this check-box is marked, do not fill in below.)
State (i.e. country) of nationality:  State (i.e. country) of recountry) of recountry of recount	l esidence: US
This person is applicant all designated all designated States except the	United States the States indicated in the Supplemental Box
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State (i.e. country) of nationality:  US  State (i.e. country) of re	esidence; US
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Name and address: (Family name followed by given name; ]): a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)	This person is:  applicant only applicant and inventor inventor only (If this check-box is marked, do not fill in below.)
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Sheet No .....4......

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Sheet No ..5...

Box No. VI PRIORI	TY CLAIM	Further pri	iority claims are indicated in	the Supplemental Box	
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(day/month/year)	of earlier application	country	regional Office	international application receiving Office	
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international application	7	8 APR 2000 (	(28.04.00 )	2. Drawings	
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Jone Application No PCT/EP 00/03848

A CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07D233/24 A61K31/417 A61P43/00 C07D409/12 C07D403/12 C07D417/12 C07D401/12 C07D405/12 C07D413/12 According to International Patent Classification (IPC) or to both rational descriptional or IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 CO7D A61K A61P Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international sciench (name of data base and, where precedul, search terms used) CHEM ABS Data C. DOCLIMENTS CONSIDERED TO BE RELEVANT Category \* Citation of document, with indication, where eporopriate, of the relevant passeages Relevent to dain No. Α WALFRED S. SAARI ET AL.; 1,19,20, "alpha-Adrenergic activities of some substituted 2-(aminoethyl)imidazolines" JOURNAL OF MEDICINAL CHEMISTRY. vol. 26, no. 12, - 1983 pages 1769-1772, XP002147365 AMERICAN CHEMICAL SOCIETY. WASHINGTON., US ISSN: 0022-2623 cited in the application \* complete document \* Α US 3 754 002 A (RICHARD E. BROWN ) 1,19,20, 21 August 1973 (1973-08-21) \* complete document \* US 4 506 074 A (MERCK & CO., INC.) Α 1,19,20, 19 March 1985 (1985-03-19) column 1 -column 3 Further documents are listed in the continuation of box. C. l XI Patent family members are fixed in annox. X Special categories of cited documents: TT tabor document published after the international filling date or priority date and not in confect with the application but cited to understand the principle or theory, underlying the \*A" document defining the general state of the last which is not considered to be of particular relevance. invention "E" earlier document but published on or after the international \*X\* document of particular relevance; the claimed invention cannot be considered hovel or cannot be considered to involve an inventive slep when the document is taken alone filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) document of particular relavance; the claimed invention carnot be considered to involve an inventive step when the document is combined with one or more other such docu-\*O\* document referring to an oral diaclosure, use, exhibidon is other means. menta, such combination being obvious to a person skilled in the art. document published prior to the international filing date out later than the priority date claimed "&" document member of the earne patent family Date of the actual completion of the international search Date of mailing of the international search report 14 September 2000 10/10/2000 Name and mailing address of the ISA Authorized officer European Parent Office, P.B. 5818 Patentiat r 2 NL - 2260 HV Ripwik Tel. (+31-70) 340-2040, Tx. 31 651 epo n . Fax: (+31-70) 340-3016 Van Bijlen, H

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# INTERNATIONAL SEARCH REPORT

Int. Sorial Application No PCT/EP 00/03848

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pagory *	Citerion of document, with Indication, where appropriate, to the Control of the C		1,19,20,		
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PC 1/EP 00/03848

Parent document cited in search report		Publicution data	Patent family member(s)	Publication date
US 3754002	Α	21-08-1973	NONE	
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Jonel Application No. PCT/EP 00/03848

A CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07D233/24 A61K31/417 C07D409/12 C07D403/12 A61P43/00 C07D417/12 C07D413/12 CO7D405/12 C07D401/12

According to International Patent Classification (IPC) or to be a national description and IPC

#### BL FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) IPC 7 CO7D A61K A61P

Occumentation searched other than minimum documentation to the extent that such documents are included. In the fields searched

Electronic data base consulted during the international equatch (name of data base and, where precocal, search terms used)

CHEM ABS Data

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to dain No.
A	WALFRED S. SAARI ET AL.: "alpha-Adrenergic activities of some substituted 2-(aminoethyl)1midazolines" JOURNAL OF MEDICINAL CHEMISTRY., vol. 26, no. 12, - 1983 pages 1769-1772, XP002147365 AMERICAN CHEMICAL SOCIETY. WASHINGTON., US ISSN: 0022-2623 cited in the application * complete document *	1,19,20,
A	US 3 754 002 A (RICH/RD E. BROWN ) 21 August 1973 (1973-08-21) * complete document *	1,19,20, 22
A	US 4 506 074 A (MERCK & CO., INC.) 19 March 1985 (1985-03-19) column 1 -column 3 -/	1,19,20, 22

Y Further documents are listed in the continuetion of box C. Patent family members are fixed in annex. "I taper document published after the International filling date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention \* Special categories of cited documents: "A" document defining the general state of the last which is /ot considered to be of particular relevance. Isobismetric entrette to no benefiduo tud memuoob reitige "E" "X" document of particular relevance; the claimed invent filing date cannot be considered have or cannot be considered to involve an inventive step when the document is taken slone "L" document which may throw doubte on priority clalm(s) or which is cited to establish the publication date of another citation or other special reason (as apecifical) "Y" document of particular relevance; the cisimed invention carnot be considered to involve an inventive step when the document is combined with one or more other such docu-ments, such combination being obvious to a person addled \*O\* document referring to an oral diaclosure, usa, exhibidon a other means. \*P- document published prior to the international filing date out later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 10/10/2000 14 September 2000 Authorized officer Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentia: r. 2. NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo n.: Fax: (+31-70) 340-3016

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Van Bijlen, H

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 tom) DOCUMENTS CONSIDERED TO BE RELEVANT  Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
EP 0 887 346 A (F. HOFFMANN-LA ROCHE AG) 30 December 1998 (1998-12-30) claims 1,17	1,19,20, 22
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Patent document cited in search report						Patent family member(s)					Publication > date
US 3754002	Α	21-08-1973	NONE								
US 4506074	A	19-03-1985	ZA	8308259 A	26-06-1985						
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			BR	9802201 A	25-05-1999						
			CA	2240136 A	23-12-1998						
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## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PU3650/WO	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No.	International filing date (day/mont	h/year) Priority date (day/month/year)
PCT/EP00/03848	28/04/2000	30/04/1999
International Patent Classification (IPC) C07D233/24	or national class fication and IPC	
Applicant GLAXO GROUP LIMITED et al.		
This international preliminary eand is transmitted to the application.	xamination report has been prepare ant according to Article 36.	d by this International Preliminary Examining Authority
2. This REPORT consists of a tot	al of 6 sheets, including this cover	sheet.
been amended and are th	anied by ANNEXES, i.e. sheets of t e basis for this report and/or sheets on 607 of the Administrative instruc	he description, claims and/or drawings which have containing rectifications made before this Authority tions under the PCT).
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3. This report contains indication:	s relating to the following items:	
I 🛭 Basis of the report		
Il Priority		
III 🖾 Non-establishmen	t of opinion with regard to novelty, in	eventive step and Industrial applicability
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VII 🖾 Certain defects in	the international application	
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# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/03848

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l.	Ba	sis of the report	,			
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3.	With	n regard to any nuc rnational preliminary	leotide and/or amino acid sequence disclosed in the international application, the examination was carried out on the basis of the sequence listing:			
		contained in the int	emational application in written form.			
		filed together with t	he international application in computer readable form.			
		furnished subseque	ently to this Authority in written form.			
		furnished subseque	ently to this Authority in computer readable form.			
		the international ap	the subsequently furnished written sequence listing does not go beyond the disclosure in plication as filed has been furnished.			
	The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.					
4.	The	amendments have	resulted in the cancellation of:			
		the description,	pages:			
		the claims,	Nos.:			
		the drawings,	sheets:			
5.		This report has bee	en established as if (some of) the amendments had not been made, since they have been eyond the disclosure as filed (Rule 70.2(c)):			





# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

		report.)				
6.	Add	itional observations, if ne	cessary	<i>/</i> :		
					to novelty, inventive step and industrial applicability	
1.	The questions whether the claimed invention a obvious), or to be industrially applicable have				appears to be novel, to involve an inventive step (to be non- not been examined in respect of:	
		the entire international a	pplication	on.		
	×	claims Nos. 15-17.				
because:						
	the said international application, or the said claims Nos. 15-17 relate to the following subject matter which does not require an international preliminary examination (specify):  see separate sheet					
the description, claims or drawings (indicate particular elements below) or said claims No that no meaningful opinion could be formed (specify):						
		the claims, or said claim could be formed.	s Nos.	are so in	adequately supported by the description that no meaningful opinion	
		$\square$ no international search report has been established for the said claims Nos				
2.	and	A meaningful international preliminary examination report cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:				
		$\square$ the written form has not been furnished or does not comply with the standard.				
		the computer readable form has not been furnished or does not comply with the standard.				
٧.		Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement				
1.	Stat	atement				
	Nov	relty (N)	Yes: No:	Claims Claims	1-29	
Inve		entive step (IS)	Yes: No:	Claims Claims	1-29	
Ind		istrial applicability (IA)	Yes:	Claims	1-14,18-29	





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No: Claims

2. Citations and explanations see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted: see separate sheet





# INTERNATIONAL PRELIMINARY International application No. PCT/EP00/03848 EXAMINATION REPORT - SEPARATE SHEET

#### **AD SECTION III:**

1. For the assessment of the present claims 15-17 on the question whether they are industrially applicable, no unified criteria exist in the PCT Contracting States. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognize as industrially applicable the subject-matter of claims to the use of a compound in medical treatment, but may allow, however, claims to a known compound for first use in medical treatment and the use of such a compound for the manufacture of a medicament for a new medical treatment. Claims 15-17 relate to subject-matter considered by this Authority to be covered by the provisions of Rule 67.1(iv) PCT. Consequently, no opinion will be formulated with respect to the industrial applicability of the subject-matter of these claims (Article 34(4)(a)(i) PCT).

#### AD SECTION V:

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1. The following documents cited in the International Search Report were considered;

D1: WALFRED S. SAARI ET AL.: 'alpha-Adrenergic activities of some substituted 2-(aminoethyl)imidazolines' JOURNAL OF MEDICINAL CHEMISTRY., vol. 26, no. 12, - 1983 pages 1769-1772, cited in the application

D2: US 3 754 002 A (RICHARD E. BROWN), cited in the application

D3: US 4 506 074 A (MERCK & CO., INC.)

D4: EP 0 887 346 A (F. HOFFMANN-LA ROCHE AG), cited in the application.

2. Having regard to this prior at: the subject-matter claimed appears to be novel, the compounds disclosed in D1 differ from the present compounds on account of the meaning for X, the compounds disclosed in D2 differ on account of the COORgroup, the compounds of D3 are pyridyl derivatives and the compounds disclosed in D4 differ in the meanings for A and Y.
Thus the subject-matter according to claims 1-29 appears to most the

Thus the subject-matter according to claims 1-29 appears to meet the requirements of Article 33(2) PCT.

 Closest prior art comprises the compounds disclosed in D1 to D4. D1 describes the profiles of monoaryl derivatives, these being either alpha-1/alpha-2-agonists



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or mixed alpha-1-agonists/alpha-2-antagonists, D2 discloses compounds which stimulate the alpha-adrenergic nervous system of mammals and can therefore be used to increase blood pressure, the compounds of D3 possess alpha-2antagonistic/alpha-1-agonistic properties being useful as antidepressants and nasal decongestants and D4 disloses compound having alpha-1A-agonistic activities, which possess similar activities as the present compounds. The problem to be solved was to provide certain compounds which are alpha-1A agonists, which can be used in the treatment of urinary incontinence, nasal congestion, priapism, depression, anxiety, dementia, senility, Alzheimer's. deficiencies in attentiveness and cognition and eating disorders. Having regard to the prior art mentioned above it is considered that this problem has been solved by the compounds of the present application in an inventive manner, since the skilled person could not have expected that the present phenylaminoalkyl-2-imidazoline derivatives would show this activity as demonstrated by the Applicant on pages 62/63 of the description. Thus the subject-matter according to claims 1-29 appears to meet the

requirements of Article 33(3) PCT.

No objections with regard to Article 33(4) PCT arise for claims 1-14 and 18-29, 4. however see Section III above.

#### **AD SECTION VII:**

1. The units "psi" employed on page 10, 17, 18 and 38 are not additionally expressed in terms of the units stipulated by Rule 10.1(a) PCT.